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10/696,866

10/30/2003

Michael Rogalli

1406/178

8069

25297

7590

02/24/2005

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EXAMINER

SCHILLINGER, LAURA M

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/696,866

Applicant(s)

ROGALLI ET AL.

Examiner

Laura M. Schillinger

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/21/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-5 are rejected under 35 U.S.C. 102(a) as being anticipated by Applicant's Admitted Prior Art (hereinafter referred to as "APA").

APA teaches the following claimed limitations as cited below:

1. Process for back-surface grinding wafers, comprising the following steps:

a) applying a film, which has a support layer and an adhesion layer, by means of the adhesion-layer side, to the wafer front surface, the film being applied to the wafer front surface by lamination, the adhesion layer matching semiconductor topography structures and/or contact bumps situated on the wafer surface, while the support layer, on the rear side, runs plane-parallel to the wafer surface (APA- pages 1, lines: 20-30 and Page 2, lines: 15-25); carrying out a first photochemically initiated partial polymerization the adhesion layer, with the result that the adhesion layer adopts an elastic behavior as a result of the first partial polymerization and the adhesion between adhesion layer and wafer surface is reinforced (APA- pages 2, lines: 20-30 and 3, lines: 5-15); grinding the wafer back surface, carrying out a second

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partial polymerization the adhesion layer, with the result that the adhesion between the adhesion layer and the wafer surface is reduced; and pulling the film off the wafer front surface (page 3, lines; 15-30).

2. Process according to Claim 1, wherein wafer front surface is provided with semi-conductor structures (APA, page 1, lines: 20-25).

3. Process according to Claim 1, wherein the wafer front surface has contact bumps of a height of 150 - 250 um and a diameter of 300 - 500 um (pages 1-2, lines: 30-5)

4. Process according to claim wherein the second partial polymerization is thermally or photochemically initiated (thermal – page 3, lines: 10-15).

5. Process according claim 1, wherein the support layer rests flat on a base during the back-surface grinding of the wafer (page 2, lines: 15-25).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims rejected under 35 U.S.C. 103(a) as being unpatentable over APA as applied to claim 1 above, and further in view of Komiyama et al (0 359 373 A2).

APA teaches the claimed limitations as described above however, fails to disclose the following limitations which are taught by Komiyama as cited below:

6. Process according to claim 1 wherein the support layer includes prepolymers which are known per se, preferably polyolefins (pages 3, lines: 35-40).

7. Process according to claim 1, wherein the thickness of the support layer is 80 - 200  $\mu\text{m}$  (page 3, lines: 39-40).

8. Process according to claim 1 wherein the adhesion layer includes a thermally polymerizable prepolymer and a photochemically polymerizable prepolymer (pages 3-4, lines: 40-40).

9. Process according to claim 1 wherein the adhesion layer includes two photochemically polymerizable prepolymers (pages 3-4, lines: 40-40).

10. Process according to claim 1, wherein the adhesion layer includes prepolymer which can selectively be polymerized by a combination of a thermally activatable initiator and a photochemically activatable initiator (pages 3-4, lines: 40-40).

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11. Process according to claim wherein the adhesion layer includes a prepolymer which can selectively polymerized by combination of two different photochemically activatable initiators (pages 3-4, lines: 40-40).

12. Process according to claim wherein the adhesion layer includes acrylates, polyurethanes, epoxides, polyesters, polyethers and/or derivatives or mixtures thereof as thermally and/or photochemically polymerizable prepolymers(pages 3-4, lines: 40-40).

13. Process according to claim wherein the adhesion layer includes multifunctional acrylates combination with functional prepolymers as thermally and/or photo- chemically polymerizable prepolymers, polymers with different backbones, such as polyurethanes, epoxides, polyesters and/or polyethers derivatives thereof being present as functional prepolymers and the acrylates having double bonds(pages 3-4, lines: 40-40).

14. Process according to claim wherein the adhesion layer contains peroxides, preferably benzoyl peroxide and/or di-tertbutyl peroxide, as thermal initiators (page 4, lines: 35-56).

15Process according to claim wherein the adhesion layer includes aromatic carbonyl compounds, which undergo a Norrish type rearrangement, preferably benzoin, benzoin derivatives, benzil ketals, acetophenone derivatives and/or acylphosphine oxides alpha-amino ketones, as photochemical initiators (pages 3-4, lines: 40-40).

16. Process according to claim photoinitiators can be activated wherein the at different wavelengths (page 5, lines: 35-45).

17. Process according claim wherein the adhesion layer has a thickness up to 500 um, preferably 150-300 um, more preferably 200-300 um (page 5, lines: 20-25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of prior art to further include the specific materials disclosed by Komiyama because as Komiyama teaches such materials are preferred for securely holding the wafer during processing (Abs., lines: 1-5 and page 1, lines: 10-25).

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M. Schillinger whose telephone number is (571) 272-1697. The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W. Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
LMS

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